



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

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July 28, 1997

Lieutenant General Edward D. Baca
Chief, National Guard Bureau
2500 Army Pentagon
Washington, DC 20301-2500

Major General Raymond Vezina
Adjutant General
Massachusetts National Guard
50 Maple St.
Milford, MA 01751

Re: Massachusetts Military Reservation Training Range and Impact
Area, EPA Region I Docket No. SDWA I-97-1030

Dear General Baca and General Vezina:

As you recall, EPA Deputy Administrator Hansen's May 16, 1997 decision affirming the Administrative Order (Order) referenced above required EPA Region I to make certain technical corrections to the Order to clarify its terms relating to RCRA jurisdiction, air monitoring and unexploded ordnance.

The attached order has been corrected in accordance with Deputy Administrator Hansen's direction. I have signed the attached order as modified, which remains effective as of May 19, 1997. The attached order as modified has no new requirements or limitations, other than those directed by Deputy Administrator Hansen. To the extent that the National Guard Bureau has requested modifications to the SOW under Section XXXIV of the Order, those issues will be addressed in separate correspondence.

Thank you for your cooperation in this matter.

Sincerely,

John P. DeVillars
Regional Administrator

cc: Ms. Sherri Wasserman Goodman, Deputy Under Secretary of
Defense
Lt. Gen. Russell Davis
EPA Deputy Administrator Fred Hansen



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

In the Matter of:

Training Range and Impact Area,
Massachusetts Military Reservation

National Guard Bureau
and
Massachusetts National Guard,

Respondents.

Proceeding Under Section 1431(a) of the
Safe Drinking Water Act,
42 U.S.C. § 300i(a)

U.S. EPA Region I

EPA Docket No.:
SDWA I-97-1030

ADMINISTRATIVE ORDER
FOR RESPONSE ACTION,
AS MODIFIED

ADMINISTRATIVE ORDER
FOR: MASSACHUSETTS MILITARY RESERVATION
TRAINING RANGE AND IMPACT AREA RESPONSE ACTIONS

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I. JURISDICTION

1. This Administrative Order (Order) is issued to Respondents National Guard Bureau and the Massachusetts National Guard pursuant to the authority vested in the Administrator of the United States Environmental Protection Agency (EPA) by Section 1431(a) of the Safe Drinking Water Act (SDWA), 42 U.S.C. § 300i(a). The Administrator of EPA has delegated the authority to take these actions to the Regional Administrator of EPA Region I by EPA Delegation No. 9-17 (1200-TN-350) dated May 11, 1994.
2. In the interests of environmental protection, public health and welfare, EPA hereby orders Respondents to undertake all actions required by this Order.

II. STATE COORDINATION

3. Pursuant to Section 1431 of the SDWA, 42 U.S.C. § 300i, EPA consulted with the Commonwealth of Massachusetts and local authorities on this matter.

III. PARTIES BOUND

4. This Order shall apply to and be binding upon the Respondents, and upon their affiliated organizations, agents, contractors, and consultants.

IV. PURPOSE

5. This Order compels the Respondents National Guard Bureau and Massachusetts National Guard to implement pollution prevention measures to abate the threat to public health presented by the past and present contamination from the Massachusetts Military Reservation (MMR) Training Range and Impact Area. The required actions are described more fully in the attached Scope of Work (SOW) appended to this Order as Appendix A, which is enforceable hereunder.

V. DEFINITIONS

6. All other terms, not otherwise defined herein, shall have their ordinary meanings unless defined in SDWA, in which case the SDWA definition shall control.

"Contractor" shall mean any person, including the contractors, subcontractors, or agents, retained or hired by Respondents to undertake any Work under this Order.

"Day" shall mean a calendar day, unless otherwise specified.

"Order" shall mean this SDWA § 1431 Administrative Order, any attachments or appendices to this Order, and all documents that are to be produced or submitted pursuant to this Order. All attachments or appendices to this Order, and all documents that are to be produced or submitted pursuant to this Order are incorporated into this Order, and shall be enforceable hereunder.

"Work" shall mean all tasks and activities required by this Order or related to the performance of tasks and activities required by this Order.

VI. FINDINGS OF FACT

7. Respondent National Guard Bureau is an agency of the United States Government.
8. Respondent Massachusetts National Guard, and its divisions the Massachusetts Army National Guard and Massachusetts Air National Guard, are agencies of the Commonwealth of Massachusetts.
9. The Massachusetts Military Reservation (MMR) is a 22,000 acre facility located on Cape Cod, in the townships of Bourne, Falmouth, Mashpee and Sandwich in Barnstable County, Massachusetts. The Massachusetts Army National Guard and Massachusetts Air National Guard conduct operations at MMR.
10. Approximately 14,000 acres of MMR constitutes the Training Range and Impact Area. For over fifty years, military and law enforcement training has been conducted in the Training Range and Impact Area, including training by Respondents. This training and associated activities has included:
 - a. Small arms firing at several ranges in the Training Range and Impact Area involving the use of small caliber munitions;
 - b. Artillery firing and mortar firing into the Impact Area from gun and mortar firing points located within and/or near the Training Range;
 - c. Burning of excess propellant bags at firing ranges and gun and mortar locations;
 - d. Detonation practice for explosives at two demolition ranges in or near the Training Range and Impact Area;

- e. Detonation of unexploded ordnance (UXO) found in and near the Impact Area, including detonation of high explosive mortar rounds.
11. The Training Range and Impact Area contain over twenty small arms ranges. Up to 1,770,000 small arms rounds are fired annually at MMR.
 12. The primary chemical constituent of the small arms used by Respondents at MMR is a lead core in a metal alloy jacket, usually composed of lead, copper, iron, antimony, and nickel.
 13. Activities at the small arms ranges at MMR include the firing of projectiles at targets. After passing through the targets, the projectiles are stopped in a berm or the soil located behind the target. Over time, projectiles from small arms ranges build up in the soil. In October 1996, using conservative estimates and assuming only weekend training, a consultant for Respondents estimated that approximately 12,000 pounds of lead will accumulate each year in the berm of a single small arms range.
 14. Up to 3,181 rounds of artillery and mortar are fired annually into the Impact Area from the Training Range.
 15. In artillery and mortar firing at MMR, munitions similar to those used in small arms training as well as explosive compounds have been used. High explosives used at MMR in the past for mortar and artillery firing include trinitrotoluene (TNT) and Royal Demolition Explosive, hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX). According to Respondents, TNT has been the most widely used military explosive since World War I. RDX has been used since World War II, and is used in combination with TNT.
 16. Propellants used at MMR for artillery include single base propellants. The constituents of single base propellants include, among other things, dinitrotoluene (DNT), dibutylphthalate and diphenylamine. In 1996, over 1975 charges of Green Bag M3 series, a single base propellant, were used at the Training Range and Impact Area. DNT makes up nearly 9.5% of the weight of a 5.8 pound Green Bag M3 propellant.
 17. Another artillery propellant used at MMR is the White Bag M4 series. DNT and dibutylphthalate together account for 14% of the reported weight of this propellant, which weighs nearly 14 pounds. In 1996, 18 charges of this propellant were fired.

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18. Propellants used at MMR for mortar firing in the past have included double base propellants, including M9 propellants. Generally, double base propellants include nitroglycerine as one of the constituents. M9 propellants also contain diphenylamine.
19. Pyrotechnics are also used in training operations at MMR. In 1996, approximately 29 types of pyrotechnics were used at MMR. Available information indicates that many of the pyrotechnics have hazardous constituents, including but not limited to contaminants detected in the limited soil and groundwater sampling which has been conducted in the Impact Area and Training Range to date.
20. In 1996, 104 units of Grenade Hand Smoke HC AN-M8 pyrotechnic were used at MMR. Forty-seven percent (47%) of each unit of this pyrotechnic consists of hexachloroethane (HCE). HCE has been used by the military in production of smoke and other pyrotechnic devices since World War II. Detonation of pyrotechnics containing HCE causes HCE vapor to get into the atmosphere (ranging from the immediate vicinity of detonation to 9 miles downwind, depending on the type of device), with subsequent entry potentially into groundwater via atmospheric fallout, runoff, and soil or sediment leaching. HCE may migrate rapidly in soil.
21. Zinc chloride smoke is a military screening agent. It is produced when mixtures of zinc oxide and hexachloroethane (HCE) are ignited. Grenade Hand Smoke HC AN-M8 is composed of 47% HCE and 49% zinc oxide. The resulting chemical reaction produces mostly particulate zinc chloride (along with free carbon, calcium carbonate and silica) which combines with moisture in the air to produce hydrochloric acid and zinc oxychloride. If this smoke is breathed in a closed environment it can cause severe damage to lungs. Outdoors, safety distances are recommended for exposure to zinc chloride screening smoke (e.g. 91 meters from the source for 43 minutes is considered safe during daytime hours).
22. Many pyrotechnics used at MMR contain TNT, including all of the hand grenades used in 1996. In addition, other pyrotechnic devices used at MMR contain additional hazardous constituents such as lead thiocyanate, nitroglycerine, diethylphthalate, and acetone.
23. Explosives, including RDX and TNT, have been detonated periodically at MMR at various locations, including an area known as "Demo 1". Demo 1 is a natural depression directly

south of the Impact Area. This natural depression is approximately 30 feet above the ground water table.

24. Unexploded ordnance (UXO) has been found in the Training Range and Impact Area. Ordnance includes high explosives such as RDX and TNT.
25. On July 13, 1982, EPA formally determined that the Cape Cod aquifer is the sole or principal source of drinking water for Cape Cod, Massachusetts, and that the Cape Cod aquifer, if contaminated, would create a significant hazard to public health. 47 Fed. Reg. 30282. Among the findings on which EPA based this determination are the following:
 - a. The Cape Cod aquifer is a single continuous aquifer which then served as the "sole source" of drinking water for the approximately 147,725 permanent residents and 424,445 peak seasonal residents of Cape Cod;
 - b. There is no existing alternative drinking water source, or combination of sources, which provides fifty percent or more of the drinking water to the designated areas, nor is there any reasonably available alternative future source capable of supplying Cape Cod's drinking water demands; and
 - c. As a result of its highly permeable soil characteristics, the Cape Cod aquifer is susceptible to contamination through its recharge zone from a number of sources. Since groundwater contamination can be difficult or impossible to reverse, and since this aquifer is relied on for drinking water purposes by the general population, contamination of the aquifer would pose a significant hazard to public health.
26. Currently the Cape Cod Aquifer serves as the sole drinking water source for approximately 200,000 permanent and 520,000 seasonal residents of Cape Cod.
27. The Training Range and Impact Area lie directly over the Sagamore Lens, the most productive part of the Cape Cod Aquifer. The Training Range and Impact Area is a major groundwater recharge area, located above what may be the apex of the Sagamore Lens. Groundwater flows radially in all directions from the Training Range and Impact Area.
28. The part of an aquifer that directly supplies a public water supply well is known as a "wellhead protection area". The Training Range and Impact Area lie directly above segments of several wellhead protection areas on Cape Cod.

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29. The Cape Cod Commission, a regional planning agency, has analyzed the potential future water supply areas on Cape Cod. The Sagamore Lens has been identified by the Cape Cod Commission as the portion of the Cape Cod Aquifer most capable of supplying sufficient water to satisfy future demand. If MMR is excluded from the list of potential future water supply areas on Cape Cod, only approximately 5 percent of Cape Cod lies over groundwater which is suitable as a future water supply. If MMR is included in the analysis, approximately 19 percent of Cape Cod is suitable as a future water supply area.
30. Groundwater flow under the MMR has been calculated at an average of one to three feet per day; an estimated 6 million gallons of water per day are contaminated by plumes emanating from MMR.
31. To date, much of the Training Range and Impact Area have not been investigated for groundwater contamination. The only groundwater investigations performed to date in the Training Range and Impact Area are as follows: investigation of a chemical spill/disposal area (CS-19) undertaken by the National Guard Bureau, and now the Air Force, as part of the overall MMR Installation Restoration Program (IRP); investigation of an artillery firing location (CS-18) south of the Impact Area; and sampling of wells near the perimeter of the Training Range and Impact Area as part of an effort to identify options for a long range drinking water supply for Cape Cod.
32. In groundwater sampling performed in 1994 at CS-19 as part of the IRP within the Impact Area, RDX was detected in two wells at concentrations of 6 parts per billion (ppb) and 22 ppb. In 1995, RDX was detected in two wells at CS-19 at concentrations of 5.4 ppb and 19 ppb.
33. In 1997, RDX was reported to be detected in a well in the Impact Area near CS-19 at a concentration of .86 ppb. This sample was taken from a well considered upgradient of the known CS-19 area. Therefore, CS-19 may not be the only source of RDX contamination in the Impact Area.
34. In March, 1997, 16 ppb of RDX was reported to be detected at a depth of 135 feet in a well downgradient of CS-19.
35. In groundwater sampling performed in 1994 at CS-19, acetone was detected in groundwater at 17 ppb.

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36. In groundwater sampling performed in 1995 at CS-19, 2,4-dinitrotoluene (2,4-DNT) was reported to be detected in groundwater at an estimated level of 0.26 ppb.
37. In groundwater sampling performed downgradient and outside of the Training Range and Impact Area in July 1996 by a consultant for the Air Force as part of the long-range water supply study for the area, trinitrotoluene (TNT) was reported to be detected in a well at a concentration of .27 ppb.
38. In groundwater sampling undertaken downgradient and outside of the Training Range and Impact Area as part of the long range water supply study, lead was detected in a well near the Impact Area at 17 ppb.
39. In soil sampling performed as part of the IRP in 1992, lead was detected in soils in the Impact Area at concentrations up to 1,830 parts per million (ppm). Other contaminants found in soils within the Impact Area include inorganic chemicals other than lead; volatile organic compounds; herbicides, dioxins, and furans; and explosive compounds.
40. As part of the IRP, sampling was conducted in 1994 at an artillery gun position at chemical spill area 18 (CS-18), south of the Impact Area. Also known as the Propellant Burning Area, the firing point at CS-18 was chosen as representative of conditions typical of firing points where artillery was fired and excess propellants were burned. At CS-18, 2,4-DNT was detected at levels as high as 17,000 ppb in soil samples. The levels of 2,4-DNT found in soils at CS-18 present a risk of leaching to groundwater and resulting in unacceptable levels of 2,4-DNT in groundwater. In addition, di-n-butylphthalate, an ingredient of artillery propellants, was found at concentrations of 16,000 ppb in soil sampling undertaken at CS-18.
41. In 1993, at Aberdeen Proving Ground Army Base in Maryland, the U.S. Army Environmental Hygiene Agency conducted a study of the effects of active firing range activities on environmental media. Soil samples taken from weapons firing points and down range impact areas in that study found detectable levels of 2,4-DNT and nitroglycerine at the weapons firing point (2.6 ppm of 2,4-DNT and 140 ppm of nitroglycerine), and as far as 50 feet down range from the firing point (.32 ppm of 2,4-DNT and 29 ppm of nitroglycerine).
42. On February 27, 1997, EPA Region I issued an Administrative Order for Response Action to the National Guard Bureau

pursuant to the authority of Section 1431 of the Safe Drinking Water Act (the "February 27, 1997 Order"). The February 27, 1997 Order required the National Guard Bureau, among other things, to: (i) provide all information in its possession or control regarding known or potential contaminants on, near or emanating from the Impact Area and Training Range; (ii) prepare an accelerated work plan and schedule for a study to determine the effects on public health and the environment of past, present and future activities on or near the Training Range and Impact Area; and (iii) describe pollution prevention measures proposed to be undertaken by the National Guard Bureau; and (iv) to coordinate the work under the February 27, 1997 Order with a citizens advisory committee to be established by EPA.

43. On March 11, 1997, the National Guard Bureau wrote to EPA Region I stating its intention to comply with the February 27, 1997 Order.
44. On March 14, 1997, the National Guard Bureau submitted to EPA proposed pollution prevention measures for the Training Ranges and Impact Area. On March 18, 1997, Major General Vezina of the Massachusetts National Guard announced the Massachusetts National Guard's intention to implement additional pollution prevention measures. The pollution prevention measures proposed for the Training Ranges and Impact Area include:
 - a. Suspension of firing at small arms ranges D, K, J, N O, P and U, and implementation of mitigation measures to remove lead from impact berms at these ranges;
 - b. Suspension of all live mortar firing until the study required by the February 27, 1997 Order has been completed;
 - c. Suspension of all live artillery firing and live firing at the small arms ranges until the study required by the February 27, 1997 Order has been completed;
 - d. Covering berms at small arms ranges with a water-impermeable material except when ranges are in use;
 - e. Research and implementation of measures to remove lead in soils at small arms ranges;
 - f. Research and implementation of use of non-toxic ammunition, and bullet traps or other capture devices.
45. On March 18, 1997, the Massachusetts National Guard stated that it will continue to use plastic ammunition, artillery low-cost indirect training rounds, blank training rounds and pyrotechnics used in training, such as flares, smoke grenades and artillery simulators, at the MMR.

46. EPA Region I held a public meeting on March 20, 1997 to accept public comment on the scope and adequacy of items required under the February 27, 1997 Order, including the study to be conducted by the National Guard Bureau and the pollution prevention measures for the MMR proposed by the National Guard Bureau and the Massachusetts National Guard. EPA received comments from approximately 35 citizens.

VII. ENDANGERMENT AND RESPONSE

47. The detection of lead, RDX, DNT and TNT in groundwater samples from the Sagamore Lens, a part of the sole source aquifer underlying Cape Cod, demonstrates the release or threat of release of contaminants from the Training Range and Impact Area.
48. EPA has established lifetime health advisories for contaminants, which provide the concentration of a chemical in drinking water that is not expected to cause any adverse non-carcinogenic effect over a lifetime of exposure with a margin of safety.
49. The lifetime health advisory for RDX is 2 ppb.
50. Consumption of large amounts of RDX by humans has caused seizures, indicating that the nervous system is a primary target organ. A 1984 Department of Defense study of female mice showed an increased incidence of liver tumors following chronic oral exposure to RDX.
51. In its cancer classification system, EPA has classified RDX as a possible human carcinogen (Group C carcinogen).
52. The lifetime health advisory for TNT is 2 ppb.
53. Chronic exposure to TNT by humans has been associated with skin irritation and cataracts. Exposure to very high levels of TNT in the workplace have been associated with disorders of the blood and abnormal liver functions.
54. Oral and inhalation exposures to TNT in animals have resulted in adverse effects on the blood and liver as well as the spleen and immune system. TNT has been found to cause serious effects on the male reproductive system in rats following high exposures to TNT. In a 1984 U.S. Army study, TNT was found to cause urinary bladder tumors in female Fisher rats.

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55. In its cancer classification system, EPA has classified TNT as a possible human carcinogen (Group C carcinogen).
 56. Human exposure to 2,4 or 2,6-dinitrotoluene (DNT) in occupational settings, presumably via inhalation, may result in an increase in the death rate due to ischemic heart disease and has been associated with central nervous system effects and effects on blood.
 57. In oral exposure to high levels of 2,4-DNT or 2,6-DNT, reproductive effects have been noted in animals. Oral exposure studies in animals have also revealed effects on the blood, nervous system, liver and kidney. Both 2,4-DNT and 2,6-DNT have been found to cause liver cancer in laboratory rats of both sexes. 2,4-DNT has been found to cause kidney tumors in male mice.
 58. In its cancer classification system, EPA has classified the mixture of 2,4-DNT and 2,6-DNT as a probable human carcinogen (Group B2 carcinogen).
 59. EPA has established a Drinking Water Equivalency Level (DWEL) to assess the non-carcinogenic potential for 2,4-DNT in adults. The DWEL for 2,4-DNT is 100 ppb and the DWEL for 2,6-DNT is 40 ppb.
 60. EPA has established Maximum Contaminant Level Goals (MCLGs) for contaminants in drinking water, pursuant to Section 1412 of SDWA. MCLGs are set at levels at which no known or anticipated adverse health effects will occur. The MCLG for lead is zero. Further, for certain public drinking water supply systems, EPA has established 15 ppb as the level at which corrosion control systems must be established in order to reduce lead levels in drinking water.
 61. Lead is a reproductive hazard that can adversely affect the brain and central nervous system by causing encephalopathy and peripheral neuropathy. Lead exposure across a broad range of blood lead levels has been associated with a spectrum of pathophysiological effects, including interference with heme synthesis necessary for formation of red blood cells, anemia, kidney damage, impaired reproductive function, interference with vitamin D metabolism, impaired cognitive performance (as measured by IQ tests, performance in school and other means), delayed physical development, and elevations in blood pressure.
 62. Lead has the potential to bioaccumulate. This phenomenon occurs when the tissues of prey organisms (plant or animal)

are passed into those of predators resulting in increased lead concentration levels orders of magnitude higher. Lead can accumulate in the tissues of many free-living wild animals, including birds, mammals, fishes and invertebrates such as worms and snails. Lead has been demonstrated to adversely affect bacteria and fungi on leaf surfaces and soil, many of which play key roles in the decomposer food chain.

63. EPA has established a Drinking Water Equivalency Level (DWEL) for dibutylphthalate to assess the non-carcinogenic potential in adults. The DWEL for dibutylphthalate is 4 parts per million (ppm).
64. In its cancer classification system, EPA has classified HCE as a possible human carcinogen (Group C carcinogen).
65. The lifetime health advisory for diphenylamine is 200 ppb.
66. Acetone, dibutylphthalate, diethylphthalate, HCE, lead thiocyanate and nitroglycerine are listed at 40 C.F.R. § 302.4 as hazardous substances, pursuant to Section 102 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9602.
67. The continued release of lead, RDX, TNT, and DNT, and any release of other contaminants from the Training Range and Impact Area, may present an imminent and substantial endangerment to the health of persons.
68. The Work and pollution prevention actions specified in the SOW appended to this Order, will include, but not be limited to, the following: the implementation of the pollution prevention measures proposed by the National Guard Bureau and Massachusetts National Guard, as summarized above and as more fully described in Appendix A attached hereto; implementation of the additional pollution prevention and control measures as described in Appendix A; and ensuring adequate public involvement in all the Work undertaken pursuant to this Order.

This Work is necessary to prevent, minimize, and/or mitigate the threat of an imminent and substantial endangerment to the health of persons posed by the actual or potential releases of lead, RDX, TNT, DNT and other contaminants into the soils and groundwater at and emanating from the Training Range and Impact Area.

VIII. CONCLUSIONS OF LAW

Based on the foregoing, EPA makes the following Conclusions of Law:

69. Respondent National Guard Bureau is a "person" as that term is defined in Section 1401(12) of the SDWA, 42 U.S.C. § 300f(12).
70. Respondent Massachusetts National Guard is a "person" as that term is defined in Section 1401(12) of the SDWA, 42 U.S.C. § 300f(12).
71. The lead, RDX, DNT and TNT found in the groundwater beneath or near the Training Range and Impact Area, and the DNT used in propellants in artillery fired at the Training Ranges into the Impact Area and found in the groundwater beneath or near the Training Range and Impact Area, are "contaminants", as that term is defined in Section 1401(6) of SDWA, 42 U.S.C. § 300f(6).
72. The lead, RDX, DNT and TNT found in the groundwater beneath or near the Training Range and Impact Area are present in or likely to enter the Sagamore Lens of the Cape Cod Aquifer.
73. The Sagamore Lens is part of the Cape Cod Aquifer, an "underground source of drinking water", as that term is defined in 40 C.F.R. Section 144.3.

IX. DETERMINATIONS

Based on the foregoing and the EPA Administrative Record for this Site, EPA has determined that:

74. The contaminants present in or likely to enter the underground source of drinking water may present an imminent and substantial endangerment to the health of persons, within the meaning of Section 1431(a) of SDWA, 42 U.S.C. § 300i(a).
75. Respondents have caused or contributed to the endangerment described immediately above.
76. In accordance with the requirements of Section 1431 of the SDWA, EPA determines that the Commonwealth of Massachusetts and local authorities have not taken the actions necessary to protect the health of persons whose sole source of drinking water is the Sagamore Lens of the Cape Cod Aquifer (i.e, they have not ordered the steps required by this Order).

77. The actions required by this Order are necessary to prevent further release or threat of release of contaminants and to protect the health of persons who are or may be users of the Sagamore Lens of the Cape Cod Aquifer. Based on the endangerment described above, the response actions in this Order are necessary. The response actions will consist of Respondents' implementation of the Scope of Work appended to this Order. The Scope of Work is designed to prevent, minimize, and/or mitigate damage to the health of persons which may otherwise result from the release or threat of release of contaminants.

X. ORDER

78. Based on EPA's jurisdiction, Findings of Fact, Conclusions of Law set forth above, the Administrative Record supporting issuance of this Order, and in order to abate or prevent any imminent and substantial endangerment to health, the Respondents are **ORDERED** to perform all Work required under this Order. The Respondents shall comply with the following provisions and perform all actions required by the terms and conditions of this Order.

XI. DESIGNATION OF SUPERVISING CONTRACTOR AND PROJECT COORDINATOR

79. Within **seven (7) days** after the effective date of this Order, the Respondents shall retain the services of a qualified and experienced Supervising Contractor for the purpose of performing the work required by this Order in accordance with the terms and conditions of the Scope of Work. Within the same **seven (7) day** period, the Respondents shall notify EPA in writing of the name, address, and qualifications of the proposed supervising contractor and the name and telephone number of the supervising contractor's primary contact person. The Respondents shall also notify EPA of the identity and qualifications of any other contractor(s) or subcontractor(s) to be used at the Site at least **seven (7) days** in advance of their performing any work under this Order.
80. The supervising contractor shall be a qualified professional with substantial expertise and experience in the investigation and cleanup of hazardous waste sites, munitions and contaminated groundwater. EPA reserves the right to disapprove, based on professional qualifications, conflicts of interest, and/or deficiencies in previous similar work, any contractor or subcontractor or other person engaged directly or indirectly by the Respondents to conduct work

activities under this Order. If EPA disapproves the selection of any proposed contractor, the Respondents shall notify EPA in writing of the name, address, and qualifications of another contractor within **seven (7) days** after receipt of the notice of disapproval.

81. Respondents shall provide a copy of this Order to all contractors, subcontractors, laboratories, and consultants retained in connection with this Order within **seven (7) days** after the Order's effective date or of such retention, whichever is later. The Respondents shall ensure that all such contractors, subcontractors, laboratories and consultants will perform all work in conformity with the Resource Conservation and Recovery Act, 42 U.S.C. §6901 (RCRA), SDWA, and the terms and conditions of this Order and Scope of Work. Respondents shall nonetheless be responsible for ensuring that their contractors and subcontractors perform the Work in accordance with this Order.
82. Within **seven (7) days** after the effective date of this Order, the Respondents shall designate a Project Coordinator who shall be responsible for administration of all of the Respondents' actions called for by this Order, and shall submit the designated coordinator's name, address, and telephone number to EPA. EPA will deem the project coordinator's receipt of any notice or communication from EPA relating to this Order as receipt by the Respondent.

XII. NOTICE OF INTENT TO COMPLY

83. Each Respondent shall provide, within five (5) days after the effective date of this Order, written notice to EPA stating whether it will comply with the terms of this Order. If a Respondent does not unequivocally commit to perform the work required by this Order, that Respondent shall be deemed to have violated this Order and to have failed or refused to comply with this Order. The absence of a response by EPA to the notice required by this paragraph shall not be deemed to be acceptance of Respondents' assertions.

XIII. EPA TECHNICAL PROJECT COORDINATOR

84. The EPA Technical Project Coordinator (TPC) will administer EPA's responsibilities and receive all written notices, reports, plans and other documents required by this Order. EPA's TPC under this Order will be Ms. Jane Dolan. All submissions required by this Order shall be sent to EPA's TPC at the following address:

Attention: MMR Impact Area Technical Project
Coordinator
Ms. Jane Dolan
U.S. Environmental Protection Agency
J.F.K. Federal Building
Boston, MA 02203-2211

85. EPA's TPC shall have the authority to modify the Scope of Work in writing. Absence of the TPC from the Site shall not be cause for stoppage of work by the Respondents unless specifically directed by the TPC.

XIV. WORK TO BE PERFORMED; COMPLETION OF WORK

86. Immediately after EPA approval of Respondents' retention of the supervising contractor, unless modified pursuant to Section XXXIV of this Order, Modification of the SOW, the Respondents shall commence the work detailed in the Scope of Work. All work performed by the Respondents shall be conducted in accordance with SDWA, applicable guidance documents provided by EPA, and the provisions of this Order including any standards, specifications, and time schedules contained in the Scope of Work or specified by the TPC.
87. Within forty-five (45) days after completing all work required under this Order, the Respondents shall submit for EPA approval a Completion of Work Report summarizing the activities conducted pursuant to the Scope of Work. The Completion of Work Report shall include the categories of information and conform to the requirements specified in the Scope of Work. The Completion of Work Report shall be certified by the supervising contractor, to the effect that all response activities have been completed in full satisfaction of the requirements of this Order.
88. When EPA determines that all work has been fully performed in accordance with this Order, and that all goals and objectives of this Order and the Scope of Work have been satisfied, EPA will provide written notice to the Respondents. If EPA determines that all response activities have not been completed in accordance with the provisions of this Order, it will so notify the Respondents and provide a list of the tasks remaining and a schedule for their completion. The Respondents shall perform all remaining tasks and shall submit an amended Completion of Work Report in accordance with the EPA notice. If EPA determines that the remaining tasks have not been completed in accordance with the provisions of the EPA notice and this Order, the Respondents shall be in violation of this Order.

89. EPA's issuance of the notice referred to in the paragraph immediately above shall not preclude it from later determining, based upon new information or otherwise, that the Respondents have not completed all response activities in accordance with the provisions of this Order.

XV. SUBMISSIONS REQUIRING AGENCY APPROVAL;
RESPONDENTS' OBLIGATION TO PROCEED

90. After review of any deliverable, plan, report or other item (submission) which the Respondents are required to submit for review and approval pursuant to this Order and Scope of Work, EPA may: (i) approve the submission; (ii) conditionally approve the submission with required modifications; (iii) disapprove the submission and notify the Respondents of deficiencies; or (iv) disapprove the submission and modify the deliverable, plan, report, or other item itself to cure any deficiencies. In the event EPA approves or conditionally approves the submission, or disapproves and modifies the submission itself, the Respondents shall perform all actions required by the submission, as approved, conditionally approved, or modified by EPA.
91. Upon receipt of a notice of disapproval with deficiencies ((iii) above), the Respondents shall correct the deficiencies and resubmit the submission within **seven (7) days** or such other time period specified in the notice of disapproval. Notwithstanding a notice of disapproval, the Respondents shall proceed to take any action required by any non-deficient portion of the submission. If EPA does not approve the submission as resubmitted, Respondents shall be in violation of the Order.
92. For each submission provided to EPA, the Respondents shall submit such copies as specified by the TPC. Any deliverable, plan, or report submitted to EPA pursuant to this Order shall be dated and shall include, in a prominent location in the document, the following disclaimer: "Disclaimer: This document has been prepared pursuant to a government administrative order (U.S. EPA Region I SDWA Docket No. 1030) and is subject to approval by the U.S. Environmental Protection Agency. The opinions, findings, and conclusions expressed are those of the authors and not those of the U.S. Environmental Protection Agency." In addition, any such deliverable, plan, or report which has not received final approval from EPA shall be marked "Draft" on each page.

XVI. INCORPORATION AND ENFORCEABILITY OF DOCUMENTS

93. The Scope of Work and all other appendices or attachments to this Order shall be deemed incorporated into, and made an enforceable part of, this Order. Upon approval by EPA, all contracts, deliverables, plans, reports, specifications, schedules, or other items required by or developed under this Order shall be deemed incorporated into, and made an enforceable part of, this Order. In the event of conflict between this Order and any document attached to, incorporated into, or enforceable hereunder, the provisions of this Order shall control.

XVII. ACCESS

94. To the extent Respondents own, occupy, lease or control property at the MMR, or property other than the MMR to which access is required in order to properly carry out the terms of this Order, they shall grant access to EPA, the Commonwealth of Massachusetts (the "State") and their officers, employees, agents, contractors, consultants, and other authorized representatives for purposes of implementing and monitoring work to be performed under this Order.
95. To the extent access to, use or ownership of, or easements over property other than the MMR is required for the proper and complete implementation of this Order, the Respondents shall use best efforts to obtain site access agreements or other interests in the property, in writing, sufficient to allow implementation of this Order within **thirty (30) days** after the Order's effective date. For purposes of this paragraph, "best efforts" include but are not limited to the payment of money, consistent with the Anti-Deficiency Act, in consideration of access to property.
96. Such written access agreements or other interests obtained pursuant to the preceding paragraph shall provide EPA, the State, and their officers, employees, agents, contractors, consultants, and other authorized representatives access to the MMR or other such property at all times for purposes of implementing and monitoring work under this Order. Such written access agreements or other interests shall specify that the Respondents are not EPA's representatives or agents with respect to liability associated with the Site.
97. In the event that site access agreements or other interests sufficient for implementation and monitoring of work under this Order are not obtained within the time period specified above, the Respondents shall notify EPA in writing within

three (3) days thereafter regarding the lack of such agreements and the efforts made by the Respondents to obtain them. Lack of access shall not excuse or justify failure to perform any activity or to meet any deadline not requiring or directly dependent upon such access.

XVIII. QUALITY ASSURANCE/SAMPLING

98. The Respondents shall submit immediately to EPA and the State, upon receipt, the results of all sampling or tests and all other data generated by the Respondents, their contractor(s), or on the Respondent's behalf in the course of implementing this Order. The Respondents shall also provide the quality assurance/quality control procedures followed by all sampling teams and laboratories performing data collection and/or analysis.
99. Upon request, the Respondents shall allow EPA, the State, or their authorized representatives to take split and/or duplicate samples of any samples collected by the Respondents while performing work under this Order. The Respondents shall notify EPA and the State not less than four (4) days in advance of any sample collection activity. In addition, EPA shall have the right to take any additional samples that it deems necessary.
100. The Respondents shall assure that EPA and its authorized representatives are allowed access to any laboratory utilized by the Respondents in implementing this Order. Upon request, the Respondents shall have a designated laboratory analyze samples submitted by EPA for quality assurance monitoring.

XIX. ACCESS TO INFORMATION; RECORD PRESERVATION; CONFIDENTIALITY CLAIMS

101. Upon request, the Respondents shall provide EPA with copies of all records, documents, and other information generated by the Respondents and their contractor(s) which relates in any way to the facility or to the implementation of this Order, including but not limited to, sampling and analysis records, field sheets and field notes, engineering logs, chain of custody records, contracts, bills of lading, trucking logs, manifests, receipts, reports, and correspondence. In addition, the Respondents' employees, agents, or representatives with knowledge of facts concerning the conditions at the facility or performance of work under this Order shall be made available to EPA to provide such information.

102. For a period of at least five (5) years following completion of all work conducted by the Respondents pursuant to this Order, the Respondents shall preserve all documents, records, and information of whatever kind, nature or description in their possession and/or control or that of their officers, employees, agents, licensees, accountants, contractors, attorneys, successors and assigns, that relate in any way to the performance of work under this Order, or relate in any way to releases or threatened releases of hazardous substances which are the subject of the removal action addressed by this Order. After this five (5) year period has expired, the Respondents shall provide EPA with thirty (30) days advance written notice prior to the destruction of any such records, documents, or information. The Respondents shall send such notice, accompanied by a copy of this Order, to:

Attention: MMR Impact Area Counsel
Office of Environmental Stewardship
U.S. Environmental Protection Agency
J.F.K. Federal Building
Boston, Massachusetts 02203-2211

Re: Response Action at Massachusetts Military
Reservation
SDWA Docket No. I-97-1030

Upon request, the Respondents shall provide to EPA copies of all such records, documents, or information.

103. Respondents may assert a confidentiality claim, if appropriate, covering part or all of the information required by or requested under this Order, pursuant to Section 1445(d)(1) of SDWA, 42 U.S.C. § 300j-4(d)(91) and 40 C.F.R. § 2.203(b) (1989). Respondents shall adequately substantiate all such assertions. Information determined to be confidential by EPA will be afforded the protection required by 40 C.F.R. Part 2, Subpart B. If no confidentiality claim accompanies the information when submitted to EPA, EPA may make it available to the public without further notice to the Respondents. However, pursuant to Section 1445(d)(2) of SDWA, 42 U.S.C. § 300j-4(d)(2), any information shall be disclosed to the public to the extent that it deals with the level of contaminants in drinking water.

XX. CREATION OF DANGER; EMERGENCY RESPONSE

104. Upon the occurrence of any incident or change of conditions during the activities conducted pursuant to this Order that

causes or threatens a release of hazardous substances from the facility or an endangerment to the public health or welfare or the environment, the Respondents shall immediately take all appropriate action to prevent, abate or minimize such release or endangerment. The Respondents shall also immediately notify the TPC or, in the event of his/her unavailability, shall notify the Regional Duty Officer of the Emergency Planning and Response Branch, EPA Region I, telephone (617) 223-7265. In taking any actions under this paragraph, the Respondents shall act in accordance with all applicable provisions of the Health and Safety Plan prepared pursuant to the Scope of Work.

105. The Respondents shall submit a written report to EPA within **seven (7) days** after each incident specified above, setting forth the events that occurred and the measures taken and to be taken to mitigate any release or endangerment caused or threatened by the incident and to prevent the reoccurrence of such an incident.
106. Nothing herein shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the facility.

XXI. AMENDMENTS

107. This Order, other than the Scope of Work, may only be amended in writing by signature of the Regional Administrator of EPA Region I. Amendments to the Scope of Work may only be made in writing by the TPC.
108. No informal advice, guidance, suggestion, or comment by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by the Respondents shall be construed as relieving the Respondents of their obligation to obtain such formal approval as may be required by this Order.

XXII. OTHER APPLICABLE LAWS

109. All actions required pursuant to this Order shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations, including but not limited to, the laws relating to occupational health and safety and worker's compensation.

XXIII. ENFORCEMENT; PENALTIES FOR NONCOMPLIANCE

110. Violation of this Order, or failure or refusal to comply with this Order, may subject the Respondents National Guard Bureau and Massachusetts National Guard to a citizens suit under SDWA for civil penalties of up to fifteen thousand dollars (\$15,000) for each day in which such violation or failure to comply occurs, as provided in Section 1431(b) of SDWA, 42 U.S.C. § 300i(b). In addition, Respondent Massachusetts National Guard may be subject to an enforcement action by EPA for civil penalties of up to fifteen thousand dollars (\$15,000) for each day in which such violation or failure to comply occurs, as provided in Section 1431(b) of SDWA, 42 U.S.C. § 300i(b).

XXIV. DISCLAIMER OF LIABILITY BY EPA

111. By issuance of this Order, EPA assumes no liability for injuries or damages to persons or property resulting from acts or omissions by the Respondents, their officers, employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out activities pursuant to this Order. EPA shall not be held as a party to any contract entered into by the Respondents or their employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out activities pursuant to this Order.

XXV. NO RELEASE FROM LIABILITY

112. Nothing in this Order shall constitute or be construed as a satisfaction or release from any claim, cause of action, or demand in law or equity against the Respondents or any other person, whether or not a party to this Order, for any liability such person may have for any conditions or claims arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the facility, including but not limited to any and all claims of the United States for money damages and interest under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), or under any other applicable statute or the common law.

XXVI. RESERVATION OF RIGHTS BY EPA

113. The United States reserves all rights against the Respondents and all other persons to take any further civil, criminal, or administrative enforcement action pursuant to any available

legal authority, including the right to seek injunctive relief; the recovery of money expended or to be expended (plus interest); monetary penalties; criminal sanctions; and/or punitive damages regarding: (i) any violation of this Order; or (ii) any actual or potential threat to human health or welfare or the environment, or any release or threat of release of hazardous substances on, at, in, or near the facility. Nothing in this Order shall preclude EPA from taking any additional enforcement actions, including modification of this Order or issuance of additional Orders, and/or additional actions as EPA may deem necessary, or from requiring Respondents in the future to perform additional activities pursuant to RCRA, SDWA, or any other applicable law.

114. EPA further expressly reserves the right both to disapprove work performed by the Respondents and to request or order the Respondents to perform tasks in addition to those detailed in the Order. In addition, EPA reserves all rights it may have to undertake response actions at any time and to perform any and all portions of the work activities which the Respondents has failed or refused to perform properly or promptly, and to seek reimbursement from Respondents for its costs, or seek any other appropriate relief.
115. Notwithstanding any other provision of this Order, EPA shall retain all of its information gathering, entry, inspection, and enforcement authorities and rights under any applicable law, regulation, or permit.

XXVII. OPPORTUNITY TO CONFER

116. Following the initial April 10, 1997 signature of the EPA Regional Administrator on this Order, Respondents were given the opportunity to confer with EPA on the issuance of this Order. Respondent National Guard Bureau and the Regional Administrator of EPA Region I, on April 14, 1997, held a conference regarding this Order. On April 18, 1997, Respondent National Guard Bureau requested an opportunity to confer with the EPA Administrator. On April 24, 1997, the EPA Administrator formally delegated the conference to the EPA Deputy Administrator. On May 8, 1997, Respondent National Guard Bureau conferred with the EPA Deputy Administrator. On May 16, 1997, the EPA Deputy Administrator upheld the issuance of the Order, directing EPA Region I to make certain modifications in order to clarify the Order's provisions relating to RCRA jurisdiction, air monitoring, and

unexploded ordnance, and directed that the order, as modified, become effective on May 19, 1997.

XXVIII. EXCUSED DELAY - FORCE MAJEURE

117. Respondents' activities under this Order shall be performed within the time limits set forth herein, or otherwise established or approved by EPA, unless performance is delayed or prevented by events which constitute "force majeure". For purposes of this Order, "force majeure" is defined as any event arising from causes beyond Respondents' control. "Force majeure" shall not include any inability of any Respondent to pay the costs or expenses associated with complying with this Order, or increases in such costs or expenses, except as provided below in Section XXX, Anti-Deficiency Act. When an event constituting "force majeure" occurs, Respondents shall perform the affected activities within a time period not to exceed the time provided in this Order and the period of delay attributable to "force majeure". Respondents shall use best efforts to avoid or minimize any delay or prevention of performance of their obligations under this Order, and to discover and keep apprised of any and all circumstances which may result in a delay or prevention of the work required under this Order. A delay caused by EPA, and otherwise conforming with the terms of this Section, shall be treated as beyond the Respondents' control.
118. Respondents shall verbally notify the EPA Project Coordinator as soon as possible, and not later than forty-eight (48) hours, after the discovering that circumstances have occurred or are likely to occur which may delay or prevent the performance of any activity required by this Order, regardless of whether or not those circumstances constitute a "force majeure". If the Project Coordinator cannot be reached, Respondents shall leave a telephone message at the Project Coordinator's office. Respondents shall also notify EPA in writing within seven (7) days after the date any Respondent first became aware of the circumstances which may delay or prevent any performance of any activity required by this Order. Such written notice shall be accompanied by all available pertinent documentation including, but not limited to, third-party correspondence, and shall contain: 1) a description of the circumstances and the Respondents' rationale for interpreting such circumstances as being beyond its control; 2) the actions (including pertinent dates) Respondents have taken and/or intend to take to minimize any delay; and, 3) the date or time period Respondents propose to complete the delayed activities. Such notification shall

not in and of itself relieve Respondents of any of their obligations under this Order. Respondents' failure to timely and properly notify EPA as required by this paragraph shall nullify any claim of "force majeure" and resulting entitlement to any extension of time therefor. Respondents shall have the burden of proving to EPA's satisfaction that an event constituting "force majeure" has occurred.

XXIX. EFFECTIVE DATE; COMPUTATION OF TIME

119. Pursuant to the May 16, 1997 direction of the EPA Deputy Administrator, the effective date of this Order is May 19, 1997. All times for performance of Work under this Order shall be calculated from the effective date. When computing any period of time under this Order, if the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the next working day.

XXX. ANTI-DEFICIENCY ACT

120. Nothing in this Order shall require the Respondent National Guard Bureau or other federal agency to violate the Anti-Deficiency Act.

XXXI. SEVERABILITY

121. If a court issues an order that invalidates any provision of this Order, or finds the Respondent(s) have sufficient cause not to comply with one or more provisions of this Order, Respondent(s) shall remain bound to comply with all provisions of this Order not invalidated by such court's order. If a court issues an order requiring that either Respondent is not a proper Respondent under this Order, the remaining Respondent shall remain bound to comply with all provisions of this Order not invalidated by such court's order.

XXXII. TERMINATION

122. The provisions of this Order shall remain in full force and effect until all actions required by this Order have been completed and EPA has notified the Respondents, in writing, that the actions required by this Order have been completed. Respondents shall notify EPA in writing at such time as they believe that all such actions have been completed. EPA shall have sole discretion in determining whether all such actions have in fact been completed. Failure to complete all actions required hereunder as directed by EPA shall be deemed a violation of this Order. EPA's provision of written notice

to Respondents pursuant to this paragraph shall not be construed as a waiver of any of EPA's rights to take further enforcement action under any environmental laws.

XXXIII. EXISTING CONSENT DECREE


123. The provisions of this Order are not intended to require any action inconsistent with applicable law or with the consent decree in Conservation Law Foundation of New England, Inc. v. Lt. Gen. Herbert R. Temple, Jr. as he is Chief of the National Guard Bureau, et al., No. 86-1044-S (D. Mass). To the extent that Respondents believe in good faith that any action required by this Order would be inconsistent with that Consent Decree, Respondents are to notify EPA immediately.

XXXIV. MODIFICATION OF THE SOW

124. If EPA determines that modification of the Work specified in the attached SOW or in work plans developed pursuant to the SOW is necessary and appropriate, EPA may require that such modification be included in the SOW and/or in such work plans.
125. If a Respondent believes that a modification of the Work specified in the SOW or in work plans developed pursuant to the SOW is necessary and appropriate, Respondent may petition to EPA for an EPA determination on such potential modification, submitting appropriate documentation. Within a reasonable time after receipt of such petition, EPA will make a determination whether the SOW should be modified. Bases for such a petition may include, but not be limited to, the following: the upcoming Dugway Proving Ground "Bangbox Study" regarding the use of propellants and pyrotechnics; documentation demonstrating that the use of a propellant or pyrotechnic that is suspended pursuant to this Order does not present a threat of harm to the public or the environment that would warrant its continued suspension under this Order; or results from the study required by the February 27, 1997 Order to determine the effect of past, present and future activities on or near the Training Range and Impact Area.

MASSACHUSETTS MILITARY RESERVATION
Administrative Order
Page 29

IT IS SO ORDERED. Issued as modified pursuant to the May 16, 1997 direction of the EPA Deputy Administrator.



John P. DeVillars
Regional Administrator, Region I
U.S. Environmental Protection Agency

7/25/97

Date

SCOPE OF WORK
MASSACHUSETTS MILITARY RESERVATION
TRAINING RANGE AND IMPACT AREA

Appendix A to EPA Region I Administrative Order
SDWA I-97-1030

I. INTRODUCTION AND PURPOSE

This Scope of Work (SOW) defines the response actions and obligations that Respondents are obligated to perform to implement the Work required under the Administrative Order, Docket Number SDWA I-97-1030 (the "Order"), issued by the United States Environmental Protection Agency (EPA) regarding the Training Range and Impact Area at Massachusetts Military Reservation (MMR) on Cape Cod, Massachusetts.

II. RESPONSE ACTIVITIES

Respondents shall perform the following Work:

A. Respondents shall implement the following pollution prevention measures at or near the Training Range and Impact Area:

1. During the performance of the study of the Training Range and Impact Area being performed by the National Guard Bureau pursuant to the February 27, 1997 Order, and following completion of such study until EPA approves in writing the resumption of activities, except as provided in Section XXXIV of the Order, Modification of the SOW, Respondents shall suspend the following activities:

- a. All firing of lead ammunition or other "live" ammunition at small arms ranges at or near the Training Range and Impact Area;
- b. All artillery firing using high explosives at or near the Training Range and Impact Area;
- c. All mortar firing using high explosives at or near the Training Range and Impact Area;
- d. All planned demolition of ordnance or explosives at or near the Training Range and Impact Area, except for unexploded ordnance (UXO) clearance activities;
- e. All use of artillery and mortar propellants in non-live firing of munitions at or near the Training Range and Impact Area;
- f. All use of pyrotechnics at or near the Training Range and Impact Area;
- g. All burning of propellant or propellant bags at or near the Training Range and Impact Area.

B. Within 30 days of the effective date of this Order, Respondents shall cover all berms in and near the Training Range and Impact Area in which expended small arms munitions have come to be located with flexible membrane liners of water-impermeable material approved by EPA. Such flexible membrane liners shall remain in place until Respondents remove lead from the berms pursuant to this Order and SOW, and receive EPA approval of completion of the lead removal; however, Respondents may temporarily remove the flexible membrane liners while the small arms ranges are actively being used for the firing of non-live ammunition.

C. Respondents shall remove lead munitions from all berms at all small arms ranges in the Training Range and Impact Area.

1. Within 30 days of the effective date of this Order, Respondents shall provide to EPA's Technical Project Coordinator and make available to the public a schedule and work plan with specific dates for removing lead munitions from soils in the berms at all small arms ranges on or near the Training Range and Impact Area. Such schedule and work plan shall include the following:

- a. A project objective of removing the maximum amount of lead munitions from the soil;
- b. Any necessary bench or field testing;
- c. A schedule for initiation and completion of lead munitions removal activities;
- d. Recycling the removed lead munitions, as appropriate;
- e. Use of soil modifiers to minimize prospective bullet corrosion and lead migration; and
- f. Coordination between lead munitions removal activities, and the installation and use of flexible membrane liners on all berms, as required above in Section II.B. of this SOW.

2. Within 15 days of receiving EPA's approval or modification of the schedule and work plan described above in Section II.C.1. of this SOW, Respondent shall initiate performance of all activities in the work plan as approved or modified.

D. Within those areas necessary to ensure safe access for personnel performing the soil and groundwater sampling required by the February 27, 1997 Order, Respondents shall initiate and complete periodic "sweeps" of portions of the Training Range and Impact Area with the objective of clearance of UXO.

1. Within 30 days of the effective date of this Order, Respondents shall provide to EPA's Technical Project Coordinator and make available to the public a schedule and work plan with specific dates for periodic UXO clearance "sweeps".

2. After receiving EPA's approval or modification of the schedule and work plan described above in Section II.D.1. of this SOW, Respondent shall initiate performance of UXO clearance "sweeps".

E. If, following completion of the study required by EPA's February 27, 1997 Order, and any actions resulting from that study, or pursuant to Section XXXIV of the Order, EPA approves resumption of Respondents' activities at the Training Range and Impact Area, Respondents shall ensure maximum feasible use at such time of pollution prevention technologies in any training activities. Specific measures to be evaluated by Respondents include the following:

1. Use of non-toxic lead-free combat ammunition;
2. Use of bullet traps at all small arms ranges;
3. Use of munitions-capturing material, such as "Sacon";
4. Use of non-exploding artillery and mortar rounds; and
5. Development of guidances for the operation and maintenance of the ranges consistent with the pollution prevention strategies.

F. In addition to any other requirement of this Order and SOW, during the period in which Respondents are performing response activities pursuant to the Order, Respondents shall submit to EPA and make available to the public written monthly progress reports that: (1) describe the actions which have been taken toward achieving compliance with this Order during the previous month; (2) include a summary of all results of sampling and tests and all other data received or generated by Respondents or its contractors or agents in the previous month; (3) identify all work plans, reports and other deliverables required by the Order that were completed and submitted during the previous month; (4) describe all actions scheduled for the next six weeks and provide other information relating to the progress of Work under the Order; include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays. Respondents shall submit these progress reports to EPA by the tenth day of every month following the effective date of the Order. These progress reports will also include description of progress made in ensuring future use of pollution prevention technologies as specified in Section II.E above. If requested by EPA, Respondents shall also provide briefings for EPA to discuss the progress of the Work.

G. For the activities described above in this SOW, Respondents shall provide EPA with a description of health and safety measures to be undertaken by Respondents in performance of the Work under this Order, including all plans, training and other health and safety measures necessary.

H. Within 45 days after Respondents conclude that they have

completed all response activities under the Order, Respondents shall submit to EPA and make available to the public a report (the "Completion of Work Report") describing in detail the Work undertaken under the Order and the results of the Work.

I. EPA shall review the Completion of Work Report. If EPA determines that no further Work is necessary under the Order, EPA will so notify Respondents. If EPA determines that further Work is necessary under the Order, EPA will notify Respondents of such Work, and will either provide a schedule for completion of such Work, or will direct Respondents to submit within a specified time period a schedule for completion of such Work.

III. SUBMISSIONS REQUIRING AGENCY APPROVAL

Plans, reports, and other deliverables identified in this SOW, or identified in EPA's approval or modification of any schedule and work plan to be submitted pursuant to this SOW, shall be delivered to EPA in accordance with the Order and this SOW.

IV. PUBLIC INVOLVEMENT

Respondents shall ensure adequate public involvement in all the Work undertaken pursuant to the Order and SOW. Within 30 days after the effective date of this Order, Respondents shall submit to EPA and make available to the public a plan, or, at their option, submit an amendment to the plan required by the February 27, 1997 Order for ensuring adequate public involvement, including but not limited to the following:

A. Making immediately available to the public all nonprivileged information obtained or compiled pursuant to this Order;

B. Coordinating the Work under this Order and SOW with the citizens advisory committee to be established by EPA to oversee and monitor the Work, and providing resources for the effective functioning of the citizens advisory committee;

C. Providing periodic oral and written updates to the public on the progress of the Work;

D. Sharing immediately with the public all conclusions reached by Respondent or its representatives with respect to the effects of past and present activities at the Training Range and Impact Area; and

E. Coordinating the Work under this Order and SOW with the response actions being undertaken at MMR by the Installation Restoration Program, and with the study of the Training Range and Impact Area being conducted pursuant to the February 27,

1997 order.

P 015 591 273



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WASHINGTON, DC 20301-2500	
Postage	\$
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PS Form 3800, June 1991

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3. If you want a return receipt, write the certified mail number and your name and address on a return receipt card, Form 3811, and attach it to the front of the article by means of the gummed ends if space permits. Otherwise, affix to back of article. Endorse front of article **RETURN RECEIPT REQUESTED** adjacent to the number.
4. If you want delivery restricted to the addressee, or to an authorized agent of the addressee, endorse **RESTRICTED DELIVERY** on the front of the article.
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102595-93 Z-0478

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1. If you want this receipt postmarked, stick the gummed stub to the right of the return address leaving the receipt attached and present the article at a post office service window or hand it to your rural carrier (no extra charge).
2. If you do not want this receipt postmarked, stick the gummed stub to the right of the return address of the article, date, detach and retain the receipt, and mail the article.
3. If you want a return receipt, write the certified mail number and your name and address on a return receipt card, Form 3811, and attach it to the front of the article by means of the gummed ends if space permits. Otherwise, affix to back of article. Endorse front of article **RETURN RECEIPT REQUESTED** adjacent to the number.
4. If you want delivery restricted to the addressee, or to an authorized agent of the addressee, endorse **RESTRICTED DELIVERY** on the front of the article.
5. Enter fees for the services requested in the appropriate spaces on the front of this receipt. If return receipt is requested, check the applicable blocks in item 1 of Form 3811.
6. Save this receipt and present it if you make inquiry.

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